June 15th 2004 Search #2

WEST Search History

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DATE: Tuesday, June 15, 2004

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		DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ	
☐	L24	L23 and (socket or plug)	5
☐	L23	L22 and (tube or sleeve or slid$4 or collar or sheath)	8
☐	L22	L21 and (electric$4)	8
☐	L21	L20 and (frequency or rf)	8
☐	L20	L15 and (contact or clip or spring or jumper)	9
☐	L19	L18 and (capacit$4)	11
☐	L18	(4682125| 5057106| 5178159| 5324311| 5445155| 5699801| 5792055| 5797848| 5928145| 6004269| 6031375| 6263229| 6408202| 20010056232)![pn]	28
☐	L17	WO 200240088 A2	1
☐	L16	6714809	3
☐	L15	L14 and (capacit$4)	13
☐	L14	((wireless or wire-less or "wire less") with ((magnetic adj resonance) or MRI or NMR) with (probe or antenna or wand or device))	28
☐	L13	L12 and ((magnetic adj resonance) or MRI or NMR)	0
☐	L12	L11 and (wand)	12
☐	L11	(probe capacit$4)	870
☐	L10	(wand capacit$4)	0
☐	L9	L5 and (capacit$4)	0
☐	L8	L7 and (capacit$4)	1
☐	L7	L6 and ((magnetic adj resonance) or MRI or NMR)	21
☐	L6	Ferre.in.	432
☐	L5	(5676673| 5690113| 5715822| 5730129| 6129668| 6263230)![pn]	12
☐	L4	L3 and (position$4 or orientat$4 or locat$4)	182
☐	L3	fetzner	208
☐	L2	L1 and ((magnetic adj resonance) or MRI or NMR)	56
☐	L1	fuderer.in.	174

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Search Results - Record(s) 1 through 21 of 21 returned.

☐ 1. Document ID: US 20040024309 A1

Using default format because multiple data bases are involved.

L7: Entry 1 of 21 File: PGPB Feb 5, 2004

PGPUB-DOCUMENT-NUMBER: 20040024309
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040024309 A1

TITLE: System for monitoring the position of a medical instrument with respect to a patient's body

PUBLICATION-DATE: February 5, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Ferre, Maurice R.	North Andover	MA	US	
Jakab, Peter D.	Canton	MA	US	
Tieman, James S.	Watertown	MA	US	

US-CL-CURRENT: 600/424

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 2. Document ID: US 20030097061 A1

L7: Entry 2 of 21 File: PGPB May 22, 2003

PGPUB-DOCUMENT-NUMBER: 20030097061
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030097061 A1

TITLE: Position tracking and imaging system for use in medical applications

PUBLICATION-DATE: May 22, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Ferre, Maurice R.	Boston	MA	US	
Jakab, Peter D.	Sharon	MA	US	
Tieman, James S.	Watertown	MA	US	

US-CL-CURRENT: 600/424

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 3. Document ID: US 6738656 B1

L7: Entry 3 of 21 File: USPT May 18, 2004

US-PAT-NO: 6738656
DOCUMENT-IDENTIFIER: US 6738656 B1

TITLE: Automatic registration system for use with position tracking an imaging system for use in medical applications

DATE-ISSUED: May 18, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferre; Maurice R.	North Andover	MA		
Jakab; Peter D.	Canton	MA		
Tieman; James S.	Watertown	MA		

US-CL-CURRENT: 600/426; 600/427, 600/429, 606/130

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 4. Document ID: US 6694167 B1

L7: Entry 4 of 21 File: USPT Feb 17, 2004

US-PAT-NO: 6694167
DOCUMENT-IDENTIFIER: US 6694167 B1

TITLE: System for monitoring a position of a medical instrument with respect to a patient's head

DATE-ISSUED: February 17, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferre; Maurice R.	North Andover	MA		
Jakab; Peter D.	Canton	MA		
Tieman; James S.	Watertown	MA		

US-CL-CURRENT: 600/424; 600/426, 600/427, 600/429, 606/130

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 5. Document ID: US 6687531 B1

L7: Entry 5 of 21 File: USPT Feb 3, 2004

US-PAT-NO: 6687531
DOCUMENT-IDENTIFIER: US 6687531 B1

TITLE: Position tracking and imaging system for use in medical applications

DATE-ISSUED: February 3, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferre; Maurice R.	North Andover	MA		
Jakab; Peter D.	Canton	MA		
Tieman; James S.	Watertown	MA		

US-CL-CURRENT: 600/424; 600/426, 600/427, 600/429, 606/130

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw. D

☐ 6. Document ID: US 6445943 B1

L7: Entry 6 of 21 File: USPT Sep 3, 2002

US-PAT-NO: 6445943
DOCUMENT-IDENTIFIER: US 6445943 B1

TITLE: Position tracking and imaging system for use in medical applications

DATE-ISSUED: September 3, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferre; Maurice R.	Boston	MA		
Jakab; Peter D.	Sharon	MA		
Tieman; James S.	Watertown	MA		

US-CL-CURRENT: 600/424; 606/130

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw. D

☐ 7. Document ID: US 6341231 B1

L7: Entry 7 of 21 File: USPT Jan 22, 2002

US-PAT-NO: 6341231
DOCUMENT-IDENTIFIER: US 6341231 B1
** See image for Certificate of Correction **

TITLE: Position tracking and imaging system for use in medical applications

DATE-ISSUED: January 22, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferre; Maurice R.	North Andover	MA		
Jakab; Peter D.	Canton	MA		
Tieman; James S.	Watertown	MA		

US-CL-CURRENT: 600/424; 606/130

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

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☐ 8. Document ID: US 6175756 B1

L7: Entry 8 of 21 File: USPT Jan 16, 2001

US-PAT-NO: 6175756
DOCUMENT-IDENTIFIER: US 6175756 B1

TITLE: Position tracking and imaging system for use in medical applications

DATE-ISSUED: January 16, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferre; Maurice R.	North Andover	MA		
Jakab; Peter D.	Canton	MA		
Tieman; James S.	Watertown	MA		

US-CL-CURRENT: 600/424; 606/130

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

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☐ 9. Document ID: US 5967980 A

L7: Entry 9 of 21 File: USPT Oct 19, 1999

US-PAT-NO: 5967980
DOCUMENT-IDENTIFIER: US 5967980 A

TITLE: Position tracking and imaging system for use in medical applications

DATE-ISSUED: October 19, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferre; Maurice R.	Boston	MA		
Jakab; Peter D.	Sharon	MA		

Tieman; James S. Watertown MA

US-CL-CURRENT: 600/424; 606/130

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

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☐ 10. Document ID: US 5873822 A

L7: Entry 10 of 21 File: USPT Feb 23, 1999

US-PAT-NO: 5873822
DOCUMENT-IDENTIFIER: US 5873822 A

TITLE: Automatic registration system for use with position tracking and imaging system for use in medical applications

DATE-ISSUED: February 23, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferre; Maurice R.	North Andover	MA		
Jakab; Peter D.	Canton	MA		
Tieman; James S.	Watertown	MA		

US-CL-CURRENT: 600/407; 378/205, 600/414, 600/426, 606/130

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

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☐ 11. Document ID: US 5829444 A

L7: Entry 11 of 21 File: USPT Nov 3, 1998

US-PAT-NO: 5829444
DOCUMENT-IDENTIFIER: US 5829444 A

TITLE: Position tracking and imaging system for use in medical applications

DATE-ISSUED: November 3, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferre; Maurice R.	Boston	MA		
Jakab; Peter D.	Sharon	MA		
Tieman; James S.	Watertown	MA		

US-CL-CURRENT: 128/897

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

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☐ 12. Document ID: US 5803089 A

L7: Entry 12 of 21 File: USPT Sep 8, 1998

US-PAT-NO: 5803089
DOCUMENT-IDENTIFIER: US 5803089 A

TITLE: Position tracking and imaging system for use in medical applications

DATE-ISSUED: September 8, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferre; Maurice R.	North Andover	MA		
Jakab; Peter D.	Canton	MA		
Tieman; James S.	Watertown	MA		

US-CL-CURRENT: 128/897

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

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☐ 13. Document ID: US 5800352 A

L7: Entry 13 of 21 File: USPT Sep 1, 1998

US-PAT-NO: 5800352
DOCUMENT-IDENTIFIER: US 5800352 A

TITLE: Registration system for use with position tracking and imaging system for use in medical applications

DATE-ISSUED: September 1, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferre; Maurice R.	North Andover	MA		
Jakab; Peter D.	Canton	MA		
Tieman; James S.	Watertown	MA		

US-CL-CURRENT: 600/407; 128/897, 128/898, 600/414, 600/426

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

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☐ 14. Document ID: US 5676673 A

L7: Entry 14 of 21 File: USPT Oct 14, 1997

US-PAT-NO: 5676673
DOCUMENT-IDENTIFIER: US 5676673 A

TITLE: Position tracking and imaging system with error detection for use in medical applications

DATE-ISSUED: October 14, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferre; Maurice R.	North Andover	MA		
Jakab; Peter D.	Canton	MA		
Tieman; James S.	Watertown	MA		

US-CL-CURRENT: 606/130; 606/1

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

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☐ 15. Document ID: US 4673573 A

L7: Entry 15 of 21 File: USPT Jun 16, 1987

US-PAT-NO: 4673573
DOCUMENT-IDENTIFIER: US 4673573 A

TITLE: Novel fibrinolytic enzyme compounds

DATE-ISSUED: June 16, 1987

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferres; Harry	Epsom			GB2
Smith; Richard A. G.	Reigate			GB2
Garman; Andrew J.	Betchworth			GB2

US-CL-CURRENT: 424/94.63; 424/179.1, 435/177, 435/180, 435/181, 435/185, 435/188, 435/215, 435/217, 436/547, 530/363, 530/812

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

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☐ 16. Document ID: US 4133945 A

L7: Entry 16 of 21 File: USPT Jan 9, 1979

US-PAT-NO: 4133945
DOCUMENT-IDENTIFIER: US 4133945 A

TITLE: Process for the preparation of cyclized polydienes

DATE-ISSUED: January 9, 1979

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY

Stigliani; Giuseppe	Busto Arsizio (Varese)	IT
Giudici; Alessandro	Castellanza (Varese)	IT
Ferre; Franco	Gorla Minore (Varese)	IT

US-CL-CURRENT: 526/189; 521/129, 521/902, 526/185

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 17. Document ID: US 4036829 A

L7: Entry 17 of 21 File: USPT Jul 19, 1977

US-PAT-NO: 4036829
DOCUMENT-IDENTIFIER: US 4036829 A
**** See image for Certificate of Correction ****

TITLE: Lactonyl esters of penicillins

DATE-ISSUED: July 19, 1977

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferres; Harry	Horsham			EN
Clayton; John Peter	Horsham			EN

US-CL-CURRENT: 540/312; 540/223, 540/228, 540/314, 540/325, 540/327, 540/328, 540/331, 540/335, 540/336, 540/337, 540/338, 540/339, 540/340, 540/341, 540/342

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 18. Document ID: US 3963704 A

L7: Entry 18 of 21 File: USPT Jun 15, 1976

US-PAT-NO: 3963704
DOCUMENT-IDENTIFIER: US 3963704 A

TITLE: Penicillin esters

DATE-ISSUED: June 15, 1976

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferres; Harry	Horsham			EN

US-CL-CURRENT: 540/342; 540/224, 540/225, 540/228, 540/230, 540/314, 540/327, 540/328, 540/331, 540/336, 540/337, 540/338, 540/339, 540/340, 540/341

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

19. Document ID: US 3939180 A

L7: Entry 19 of 21 File: USPT Feb 17, 1976

US-PAT-NO: 3939180
DOCUMENT-IDENTIFIER: US 3939180 A

TITLE: Penicillin esters

DATE-ISSUED: February 17, 1976

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferres; Harry	Horsham			EN
Clayton; John Peter	Horsham			EN

US-CL-CURRENT: 540/336; 540/314, 540/325, 540/327, 540/328, 540/331, 540/337, 540/338, 540/339, 540/340, 540/341, 540/342

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

20. Document ID: US 3919196 A

L7: Entry 20 of 21 File: USPT Nov 11, 1975

US-PAT-NO: 3919196
DOCUMENT-IDENTIFIER: US 3919196 A
** See image for Certificate of Correction **

TITLE: Penicillin esters

DATE-ISSUED: November 11, 1975

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferres; Harry	Horsham			EN
Clayton; John Peter	Horsham			EN

US-CL-CURRENT: 540/314; 540/223, 540/224, 540/225, 540/228, 540/230, 540/327

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

21. Document ID: US 6738656 B1, WO 9608209 A2, AU 9535528 A, WO 9608209 A3, EP 782413 A1, US 5676673 A, JP 09512735 W, US 5800352 A, US 5803089 A, US 5829444 A, US 5873822 A, EP 951874 A2, US 5967980 A, JP 11318937 A, US 6175756 B1, JP 3135068 B2, US 6341231 B1, US 6445943 B1, JP 3325533 B2, US 20030097061 A1, EP 782413 B1, DE 69531994 E, EP 1380266 A1, US 20040024309 A1, US 6687531 B1, US 6694167 B1

L7: Entry 21 of 21 File: DWPI May 18, 2004

DERWENT-ACC-NO: 1996-179682
DERWENT-WEEK: 200433

TITLE: Reference unit to patient head securing appts. for imaging system - has reference unit mounting mechanism with nose bridge mounting element and two ear mounting elements for attaching reference unit to patient head

Term	Documents
MAGNETIC	1401057
MAGNETICS	12004
RESONANCE	273014
RESONANCES	15814
MRI	23001
MRIS	316
NMR	132807
NMRS	226
(6 AND (MRI OR (MAGNETIC ADJ RESONANCE) OR NMR)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	21
(L6 AND ((MAGNETIC ADJ RESONANCE) OR MRI OR NMR)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	21

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Search Results - Record(s) 1 through 5 of 5 returned.

☐ 1. Document ID: US 20020161421 A1

Using default format because multiple data bases are involved.

L24: Entry 1 of 5 File: PGPB Oct 31, 2002

PGPUB-DOCUMENT-NUMBER: 20020161421
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020161421 A1

TITLE: Connector and guidewire connectable thereto

PUBLICATION-DATE: October 31, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Lee, Chris	Tewksbury	MA	US	
McNamara, Christine	Chelmsford	MA	US	
Viohl, Ingmar	Milwaukee	WI	US	

US-CL-CURRENT: 607/116; 600/585

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 2. Document ID: US 20020149369 A1

L24: Entry 2 of 5 File: PGPB Oct 17, 2002

PGPUB-DOCUMENT-NUMBER: 20020149369
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020149369 A1

TITLE: Microfluidic device with multiple microcoil NMR detectors

PUBLICATION-DATE: October 17, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Peck, Tim L.	Mahomet	IL	US	
Olson, Dean	Champaign	IL	US	
Norcross, Jim	Champaign	IL	US	
Strand, David	Sherborn	MA	US	

Sweedler, Jonathan Urbana IL US

US-CL-CURRENT: 324/321; 324/306, 435/4

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

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☐ 3. Document ID: US 20020040185 A1

L24: Entry 3 of 5 File: PGPB Apr 4, 2002

PGPUB-DOCUMENT-NUMBER: 20020040185
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020040185 A1

TITLE: Systems and methods for evaluating the urethra and the periurethral tissues

PUBLICATION-DATE: April 4, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Atalar, Ergin	Columbia	MD	US	
Quick, Harald	Essen-Werden	MD	DE	
Karmarkar, Parag	Elliott City		US	

US-CL-CURRENT: 600/423

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

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☐ 4. Document ID: US 6714809 B2

L24: Entry 4 of 5 File: USPT Mar 30, 2004

US-PAT-NO: 6714809
DOCUMENT-IDENTIFIER: US 6714809 B2

TITLE: Connector and guidewire connectable thereto

DATE-ISSUED: March 30, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Lee; Chris	Tewksbury	MA		
McNamara; Christine	Chelmsford	MA		
Viohl; Ingmar	Milwaukee	WI		

US-CL-CURRENT: 600/423; 439/578, 600/424, 600/585

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

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☐ 5. Document ID: US 6320384 B1

L24: Entry 5 of 5 File: USPT Nov 20, 2001

US-PAT-NO: 6320384
DOCUMENT-IDENTIFIER: US 6320384 B1

TITLE: Thermal buffering of cross-coils in high-power NMR decoupling

DATE-ISSUED: November 20, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Doty; David F.	Columbia	SC	29229-4339	
Entzminger, Jr.; George	Columbia	SC	29223	

US-CL-CURRENT: 324/321; 324/322

Term	Documents
SOCKET	430847
SOCKETS	144665
PLUG	643738
PLUGS	160718
(23 AND (SOCKET OR PLUG)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	5
(L23 AND (SOCKET OR PLUG)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	5

L24: Entry 4 of 5 File: USPT Mar 30, 2004

DOCUMENT-IDENTIFIER: US 6714809 B2
TITLE: Connector and guidewire connectable thereto

Abstract Text (1):
Connector and guidewires connectable thereto are disclosed which enable for the connection of guidewires requiring electrical connection to an external electrical source. These guidewires may be used for MRI imaging and the external source could be an MRI scanner. An embodiment of a guidewire is provided with enables for easier connection through improved dimensions and mechanical strength at the proximal end. An embodiment of a connector is provided which can attach to any guidewire or coaxial cable. These connectors provide for desirable mechanical and electrical properties while still enabling catheters and other tools to be used in conjunction with guidewires and other cables.

Brief Summary Text (6):
In accordance with one exemplary embodiment, a connector may include an orifice for receiving an end of a guidewire; a channel communicating with the orifice and providing an insertion path for the end of the guidewire; a first contact that is at least partly exposed to the channel, and is sized and shaped to couple with an inner conductor contact of the guidewire; a second contact that is at least partly exposed to the channel, and is sized and shaped to couple with an outer conductor contact of the guidewire; an output terminal electrically coupled to the first and second contacts; and a fastener structured and positioned to hold the end of the guidewire within the channel. The first and second contacts may be sequentially disposed along the insertion path.

Brief Summary Text (7):
The connector may include an interface circuit electrically coupled to the first and second contacts. The connector may include a connection detector exposed to the channel. The connector may include a DC blocking circuit coupled to at least one of the first and second contacts.

Brief Summary Text (8):
In accordance with another exemplary embodiment, a guidewire may include an inner conductor; an outer conductor coaxially disposed about the inner conductor; a distal end adapted for insertion into a subject to receive MRI signals; and a proximal end adapted for insertion into a connector. The proximal end may have an outer conductor contact coupled electrically to the outer conductor, and an extended section of the inner conductor that extends axially beyond the outer conductor contact. The extended section may have an inner conductor contact and an insulated area interposed between the outer conductive contact and the inner conductive contact. The inner conductor contact may have an electrically conductive material disposed at least partially around the inner conductor. The insulated area may have an electrically insulating material disposed at least partially around the inner conductor. The guidewire may include an extension attachment coupled to the proximal end of the guidewire.

Drawing Description Text (10):
FIG. 9 shows the embodiment in FIG. 8 with the contacts opened to allow the guidewire to slide in.

Detailed Description Text (4):
In MRI an external antenna (external with respect to the scanner, such as one being used as part of a guidewire) can receive electronic information from the MRI scanner. This information can be, e.g., control signals such as triggering information or transmit-receive gating signals. The antenna can provide RF signals containing, e.g., image information to be processed by the MRI scanner. The antenna can receive MRI signals generated from surrounding structures.

Detailed Description Text (5):
It would enhance the art to provide a low loss and reliable electrical connection between the antenna and the MRI scanner. It would further enhance the art to provide connectors that can be used in conjunction with guidewires, guidewire antennae, imaging needles and other antennas without diminishing the customary utility of these devices. It would also enhance the art to provide a connector that is easily removed and reattached to any contemplated guidewire, antenna, or the like.

Detailed Description Text (7):
FIG. 1 shows a guidewire (101) that may be designed, in part, as a coaxial cable. Here the inner conductor (103) may be placed inside an outer conductor (157) and may be electrically separated from the outer conductor (157) by insulation (105). An additional layer of electrically insulating material (107) may be applied over the outer conductor to prevent electrical contact of the conductor to the user or patient. The outer diameter of such a guidewire may be, in one embodiment, less than about 0.040 inches, and preferably between approximately 0.012-0.038 inches. The inner conductor may have a diameter of around 0.004-0.012 inches. Materials are preferably nonferrous and nonmagnetic. This may help to prevent, e.g., image artifacts due to local magnetic field distortion, or motion of the guidewire caused by unwanted forces exerted by the magnetic field of the MRI scanner on the wire which could otherwise result in uncontrolled motion of the wire and cause harm to the patient. In an embodiment, the guidewire has a stiffness sufficient for insertion into a lumen of an anatomic structure of a subject. In an embodiment, the guidewire is sterilizable.

Detailed Description Text (8):
The distal end of the guidewire can terminate in an antenna, which could be any type of MRI antenna known to the art including looped, loopless, linear whip, or helical coil designs. An MRI antenna could be positioned anywhere along the guidewire. The guidewire may also include configurations of the distal end, such as a ribbon of a malleable substance, springs, and contoured wire shapes to improve steering of the guidewire and provide appropriate stiffness characteristics.

Detailed Description Text (9):
The guidewire can comprise a superelastic material such as the Tinol.RTM. range of materials (also known as Nitinol or NiTi). Some superelastics comprise titanium or a titanium-nickel alloy. Superelastics may be significantly deformed and still return to their original shape. These characteristics are advantageous in a guidewire due to the capacity to be severely deformed without damage and the resistance to kinking. Superelastic materials are also known for high biocompatibility and favorable mechanical characteristics within biological organisms or matter. Other biocompatible materials include, e.g., Silicone, PET, PE, Pebax, teflon, nylon, hytrel, latex, urethrane, titanium, and stainless steel.

Detailed Description Text (10):
In an embodiment, the guidewire is formed of MR-compatible materials. Examples of MR-compatible materials include but are not limited to MR-compatible stainless steel, brass, copper, bronze, Nitinol, other metallic materials that are non-magnetic, non-metallic substances such as carbon, glass fiber, or polymer, that can be plated with a layer of a good RF conductor such as copper, silver, gold, or

aluminum either singly or in multiple layers, or any of the previous in any combination.

Detailed Description Text (11):
In a medical procedure, the distal end of the guidewire will be inserted into a patient, and using imaging techniques (such as MRI, X-Ray or other techniques), the guidewire will be maneuvered into a desired position, for instance near an arterial plaque. A medical device may then be threaded over the guidewire and also placed into position Often guidewires are positioned within a catheter or some other medical device, placed in a patient together, with the catheter lending support to the guidewire. This could be accomplished with a guidewire having a fixed or removable electrical connector at its proximal end by loading the guidewire into the proximal end of the catheter. A fixed connector, however, may prevent the removal or exchange of the catheter if the connector diameter is larger than the catheter's lumen diameter. In such a case, the guidewire would first be removed from the patient, the medical device exchanged, and the wire correctly placed again in the patient.

Detailed Description Text (13):
In an embodiment, the connector is formed of MR-compatible materials. Examples of MR-compatible materials include but are not limited to MR-compatible stainless steel, brass, copper, bronze, Nitinol, other metallic materials that are non-magnetic, non-metallic substances such as carbon, glass fiber, or polymer, that can be plated with a layer of a good RF conductor such as copper, silver, gold, or aluminum either singly or in multiple layers, or any of the previous in any combination.

Detailed Description Text (15):
Such medical devices include, but are not limited to, balloon catheters for dilatation angioplasties, for stent placements, for drug infusions, and catheters for local vessel therapies such as gene therapies, radiation therapies; atherotomes and other devices for plaque resection and debulking; MRI imaging catheters; drug delivery catheters; intraluminal resecting tools; lasers and radio frequency and other ablative instruments. They could also include ultrasound imaging devices or optical coherent tomographic imaging devices. The devices would include but not be limited to those which perform a diagnostic or therapeutic role in the assessment or treatment of intravascular or intracavitary disease management.

Detailed Description Text (17):
In order to connect the guidewire to the MRI machine's electrical signals so as to make it useful as an antenna, however, it is preferable to enable the very small guidewire to connect to the external antenna port on the MRI scanner, typically through a BNC connector, a multi-pin connector, or other connector. In one embodiment, the connector could be permanently attached to the proximal end of the guidewire. In another embodiment, the connector may be removably attached to the proximal end of the guidewire. In another embodiment, the connector may be dimensionally adapted to allow the catheter or other medical device to be placed over both the connector and the guidewire. In another embodiment, the proximal end of the guidewire may be dimensionally adapted to have relatively the same diameter as the rest of the guidewire.

Detailed Description Text (18):
The proximal end of the guidewire can be specially designed to provide surfaces for connecting to both inner and outer coaxial conductors while maintaining mechanical strength and not risking breakage or bad connection from having to thread the narrow inner conductor directly into some type of fitting capable of making an electrical connection.

Detailed Description Text (19):
Similarly, the proximal end can be adapted to fit an extension wire to permit

device exchange capability as well as the electrical connection.

Detailed Description Text (20):
FIG. 1 shows the proximal end of a guidewire utilizing one embodiment to make connection to the inner conductor in some embodiments simpler and more reliable. In FIG. 1, the inner conductor (103) and the outer conductor (157) extend beyond the end of the outer insulation (107) to expose conductive areas for electrical contact. The inner conductor (103) extends further, beyond the proximal end of the outer conductor (157), thereby exposing an extended section (164) on which to make contact to the inner conductor (103). The extended section has an insulated area (162) and an inner conductor contact (163). The inner conductor contact (163) includes an electrically conductive material (159) that may be built up around the inner conductor (103). This facilitates the easy insertion of the proximal end (153) of the guidewire (101) into the connector, and helps to maintain maximum strength in the extended section (164). In an embodiment, the inner conductor (103) may be built up with electrically conductive material, preferably nonmagnetic (such as brass tubing) to approximately the same diameter (166) as the outer conductor (157). The inner conductor contact (163) may be radially disposed about a portion of the extended section (164). In an embodiment, the inner conductor contact (163) is built up to a smaller diameter than that of the outer conductor (157). In an embodiment, the inner conductor contact (163) is built up to a larger diameter than that of the outer conductor (157).

Detailed Description Text (21):
As shown in FIG. 6, at least a portion of the extended section (164) may be configured to accept an extension attachment (602). In an embodiment, the attachment (602) has a diameter substantially equal to diameter (166) as the guidewire (101). The extension attachment can add a length to the proximal end (153) of the guidewire (101) that may be long enough to permit medical device exchanges without displacing the guidewire (101) from its position in-situ. The attachment mechanism may include, but is not limited to: matching threads on the attachment and extended section (164) for screwable attachment; a tube to tube slip fit or snap fit; or a coiled spring fitting into a appropriately sized tube. Any of these configurations could be interchangeably incorporated on any portion of extended section (164) area of the guidewire (101), or the extension attachment. Other attachment mechanisms known in the art may also be employed. In an embodiment, the extension attachment is attached to the inner conductor.

Detailed Description Text (22):
Referring again to FIG. 1, the insulated area (162) can be built up with an electrically insulating material (155) to prevent potential short circuiting between the outer conductor (157) and the inner conductor (103) or inner conductor contact (163). The built-up insulating material (155) can also provide rigidity for the proximal end (153).

Detailed Description Text (23):
This configuration converts the two concentric coaxially oriented conductors to a pair of contacts that are exposed to the connector in a sequential axial configuration, both of which are relatively the same diameter as the outer conductor. In one embodiment, the coaxial relationship can then be maintained by the design of the connector from that point to an interface circuit, or the MRI scanner, while still allowing for easier connection to the connector.

Detailed Description Text (24):
The interface circuit may include capacitors, inductors, resistors, diodes, and other electrical and electronic elements to couple the signals from the guidewire (101) ultimately to an MRI scanner. The interface circuit may be coupled to each of the contacts in the connector. The interface circuit may include a tuning/matching circuit. The interface circuit may include a decoupling circuit. The interface circuit may include a balun trap. The interface circuit may also provide high

voltage protection for the guidewire and any subject into which the guidewire may be inserted during use. DC in excess of a predetermined threshold may be isolated from the electrical signal applied to the guidewire via DC blocking/RF bypass capacitors. The interface circuit may also include a connection detector to signal the user or scanner in the event of disconnection between the guidewire and connector. The interface circuit may also include an identification system to identify the coil to the connector or to the scanner with a coding scheme.

Detailed Description Text (25):
The connector adapted for coupling to the inner conductor contact (163) can be of many types; exemplary embodiments are provided below. One of skill in the art would recognize additional connector types and those types are also included in this disclosure.

Detailed Description Text (26):
In an embodiment, two conductive collets are positioned in line coaxially with the guidewire, as shown in FIG. 3. A first collet (203) makes contact with the inner conductor contact (163) of the inner conductor (103). A second collet (207) makes contact with the outer conductor (157). These two collets remain electrically isolated from each other. Isolation may be maintained by, e.g., physical separation or by imposition of an insulating material between them. The collets may come into contact with the appropriate conductors through any method or system known to the art. One method is to compress the collets axially to provide a clamping force on the guidewire contact surfaces via the angled outer surface (210) of the collets. This can be achieved using a cap with threads or with cams to produce axial motion when rotated relative to the body of the connector. One embodiment of such a cap (230) and tapered collets (203, 207) is shown in FIG. 2. In an embodiment, the collets are flexible and resilient.

Detailed Description Text (27):
When connecting the guidewire to the connector, the connection between the outer conductor contact (157) and the distal collet (207) contact can be easily confirmed manually by lightly tugging or twisting the guidewire relative to the connector. Mechanical clamping may be desirable in one embodiment because it can, e.g., facilitate steering the guidewire. A physician or other operator of the guidewire can use the connector as a handle. Mechanical clamping can also prevent inadvertent removal of the guidewire from the connector. The increased diameter (and potential gripability through texturing of the body (240)) of the connector can enable the operator to achieve greater torque control on the guidewire as a whole and at the distal tip where steering is performed. The increased torque control can improve the ability of the operator to steer the guidewire through twisting pathways.

Detailed Description Text (28):
In an embodiment, the inner and outer conductor contacts can form annular shapes. In an embodiment, the insulated area may form an annular shape. In an embodiment, any of the inner conductor contact, the outer conductor contact, and the insulated area may form a "C" shape. In an embodiment, any of the inner conductor contact, the outer conductor contact, and the insulated area may form a series of interrupted patches around the circumference of the guidewire.

Detailed Description Text (29):
In an embodiment, the proximal contact may couple to the outer conductor contact, and the distal contact may couple to the inner conductor contact.

Detailed Description Text (30):
To ensure a good mechanical and electrical contact is made on the enclosed inner conductor, the clamping angle of the proximal collet (203) can be reduced so that it will clamp the inner conductor contact before the distal collet (203) will clamp the outer conductor under axial movement. Therefore when the outer conductor contact is confirmed manually, the inner contact is also ensured.

Detailed Description Text (31):
In operation, the cap of FIG. 2 would slowly compress the collets (203) and (207) as the cap (230) may be screwably displaced along the connector body (240) by pushing relatively solid components of the cap or body into the angled sides (242) of the collets. One of skill in the art would recognize that many other attachment methods other than screwably connecting could be used and all such other methods are included within the scope of this disclosure. Some alternatives to the threads or cams for axial locking motion include, but are not limited to, a lever that may be integrated into the connector body to produce this action or an axially sliding sleeve with a return spring and/or detents.

Detailed Description Text (32):
In order to maintain the coaxial nature of the conductors, such as for providing shielding, the signal path for the outer conductor (157) may be from the distal collet (207) to the cap (230) and body (240) of the connector, and to the outer sleeve (257) of the rotating contact (250). This rotating contact can be any type of coaxial (or other if the coaxial nature is not desired to be maintained) connector such as a standard BNC connector, or a standard MMCX connector, or any other standard or nonstandard connectors known in the art now or in the future. In one embodiment, this contact (250) can then be connected by any method known in the art, to the antenna output of the MRI scanner including, but not limited to, the use of a cable, or by methods of wireless transmission.

Detailed Description Text (33):
The signal path for the inner conductor (103) may be from the proximal collet (203) to a center pin (263) which can be connected directly to, or be made from the same contiguous part as, the inner pin (253) of the contact (250). In an embodiment, the proximal collet (203) and center pin (263) are disposed inside the outer signal path to maintain coaxiality throughout the connector. In an embodiment, one or both of the proximal collet (203) and center pin (263) are not disposed inside the outer signal path. In an embodiment, the contacting components may be plated with an oxidation resistant material such as gold to enhance connection quality. Further, in one embodiment, additional rotating contacts (213) and (217) as shown, e.g., in FIG. 3, may be provided to enable rotation of the connector relative to any cables or devices connected to the output terminal. This rotational capability of the connector can also be accomplished through coaxial contacts with a smooth sliding fit to the stationary socket.

Detailed Description Text (34):
FIG. 5 shows another embodiment of a collet style clamping connector. The body (502) may contain a distal collet clamp (504) and a proximal collet clamp (508) arranged longitudinally. A distal insulator (510) may surround the distal collet clamp (504) and insulate it from the body (502) and/or from the proximal collet clamp (508). The distal insulator (510) may also center the distal collet clamp (504) in the body (502). The distal insulator (510) may include a material having a dielectric constant. A proximal insulator (512) can similarly surround the proximal collet clamp (508) and may include a material having a dielectric constant. The proximal insulator (512) may insulate the proximal collet clamp (508) from the body (502) and/or from the distal collet clamp (504). A proximal clamp ring (514) may be positioned between the distal collet clamp (504) and the proximal collet clamp (508), contacting the distal insulator (510) and engaging the angled surface (518) of the proximal collet clamp (508). The distal insulator (510) may insulate the distal collet clamp (504) from the proximal clamp ring (514). The distal and proximal clamps (504, 508) may also be insulated from each other by physical isolation from one another. On the end opposite the angled surface (518), the proximal collet clamp (508) can terminate in a center pin (520) of a plug (522).

Detailed Description Text (35):
The plug (522) may be an output terminal including a single or multi coaxial pin or

non-coaxial single and multi-pin connector, including BNC connectors, D-shell connectors, Lemo connectors, MMCX connectors, etc and other connectors known in the art. In an embodiment, the proximal contact (508) may extend axially to the plug (522) to form the center pin (520). The center pin (520) may be surrounded by an outer adapter (524). The plug (522) can have a mechanism for secure but rotatable and removable attachment to a mated connector (not shown). The mechanism may include, e.g., a spring-loaded cuff (528) that fits into a corresponding retaining ring or groove of the mated connector. A cap (528) may screwably attach to the body (502).

Detailed Description Text (36):
A guidewire (534) may be inserted into the connector through an orifice (540) and into a channel (542). The channel (542) may define an insertion path for an end of the guidewire (534) in to the connector. The cap (528) may then be screwed onto the body (502), to secure the guidewire (534) in the connector and to form electrical contacts. The cap (528) can engage an angled surface (530) of the distal collet clamp (504). This may cause the distal collet clamp (504) to touch an outer conductor contact (532) of the guidewire (534). Compression of the cap (528) against the distal collet clamp (504) may also cause the distal collet clamp (504) to push against the proximal clamp ring (514), which in turn can engage the angled surface (518) of the proximal collet clamp (508), causing it to touch a inner conductor contact (538) of the guidewire (534).

Detailed Description Text (37):
An electrical signal from the inner conductor contact (538) of the guidewire (534) can follow an inner conductor path that may include the proximal collet clamp (508) and the center pin (520) of the plug (522). In an embodiment, the inner conductor contact (not shown) of the guidewire (534) extends axially to the plug (522) to form the center pin (520). An electrical signal from the outer conductor contact (532) of the guidewire (534) can follow an outer conductor path that may include the cap (528), the body (502), and the outer adapter (524) of the plug (522).

Detailed Description Text (38):
Any of the contacts described herein may have an annular shape; may extend around the full circumference of the channel; may extend around a portion of the circumference of the channel; may extend around multiple portions of the circumference of the channel; or may extend around the full circumference of the channel with interruptions.

Detailed Description Text (39):
The impedance of the connector can be matched to that of any MRI scanner by adjusting the relative dimensions of the inner and outer conductor paths and the dielectric constants of the insulators (510, 512). The materials of the insulators (510, 512) may be any electrically insulating substance or air. In an embodiment, the insulators (510, 512) include a fluoropolymer. The insulators (510, 512) may include polyethylene, a foamed material incorporating air in the structure, ceramic, or other materials with appropriate dielectric and mechanical properties.

Detailed Description Text (40):
The guidewire (534) may be secured in the connector by other securing mechanisms. In an embodiment, the connector includes a gripper that contacts the guidewire (534) and holds in relative longitudinal position with respect to the guidewire. The gripper may be actuated by, e.g., a lever, collet, snap, button, dial, cam, or other device known to one of skill in the art.

Detailed Description Text (41):
In an embodiment, the connector may be provided with a sliding contact. This may take the form of, e.g., a spring piston on the inside of the channel (542) through which the guidewire (534) inserts. The piston can push against the guidewire (534), releasably making electrical contact.

Detailed Description Text (44):
In an embodiment, a tubular mesh of wire may be deployed within the channel (542). As the guidewire (534) is inserted, axial compressive force may be exerted on the mesh by the guidewire, causing its diameter to increase slightly and permit further insertion of the guidewire (534). Once the guidewire (534) is inserted, the mesh can remain in contact with it.

Detailed Description Text (45):
In an embodiment, the guidewire (534) may be rotationally fixed with respect to the connector. This facilitates rotation of the guidewire by gripping and rotating the connector. Such a manipulation may be desirable, e.g., to rotate a portion of the guidewire (534) that is inside a subject. The connector may be rotationally free with respect to the mated connector. This prevents the creation of torsion in the guidewire (534) or at the point of connection of the plug (522) to the mated connector.

Detailed Description Text (46):
In an embodiment, the guidewire could be secured and rotationally fixed with respect to the connector by screwably attaching the guidewire to the connector. Threads could be provided on, e.g., the outer contact and/or inner contact of the guidewire, with corresponding threads on the distal and/or proximal contact of the connector.

Detailed Description Text (47):
FIG. 8 shows an embodiment in which the guidewire (802) may be rotationally free with respect to the connector (800). In another embodiment the connector body (804) provides RF shielding by using an electrically conductive material or by applying a conductive layer to a non-conductive body material.

Detailed Description Text (48):
The connector (800) may include a contact carrier (808). The contact carrier (808) may be made of a non-conducting material. It can hold one or more contacts (822, 824) exposed to a channel (810) to connect to the guidewire contacts (812, 814) electrically, and mechanically connect to at least one surface of the guidewire (802) with sufficient force to retain the guidewire (802) while being pulled axially. The contact carrier (808) may surround the channel (810). When the carrier (808) is in its closed (free) state, the contacts (822, 824) exposed to the channel (810) are in contact with the guidewire contacts (812, 814).

Detailed Description Text (49):
The carrier (808) can be spring loaded (as by, e.g., springs 828) or include an elastically bendable material allowing it to be deformed by pushing it against a conical wedge (818) at the front of the body (804) and disposed between the carrier (808) and an orifice (840). The springs (828) may be disposed between the wedge (818) and the carrier (808). The carrier (808) may optionally be made pliable by providing, e.g., slots (1002 in FIG. 10) or other interruptions in the carrier (808). This deformation can open the carrier (808) radially, moving at least one of the contacts (822, 824) outward, as shown in FIG. 9. This opening provides clearance for the guidewire (802) to be inserted with less interference than for the carrier (808) in the closed (free) position. When released, the carrier (808) will return to its free position by sliding proximally and off of the wedge (818), allowing the contacts (822, 824) to clamp the guidewire (802) and allowing the carrier (808) to rotate relative to the body (804). In an embodiment, the contacts (822, 824) present no obstructions to the free rotation of the guidewire (802) within the channel (810).

Detailed Description Text (50):
The carrier can be actuated (i.e., moved from the closed or free position to an open position) by a number of mechanisms, such as by a lever (1004) as shown in the

cutaway view of FIG. 10. In an embodiment, the lever (1004) may be depressed, thereby moving the carrier (808) distally and causing it to open. A lever facing in the opposite direction and lifted to actuate the carrier (808) can also be used. Alternatively, the connector can be configured such that axial movement can be produced when one component can be rotated relative to another, as with a cam or threads. A slide or button could also be used.

Detailed Description Text (51):
In an embodiment, e.g., as shown in FIG. 8, the outer contact (824) can be provided as an active clamping contact that may be applied to and released from the guidewire (802) via actuation of the carrier (808). This provides electrical contact and good mechanical clamping on the outer contact (814) of the guidewire (802), which may be stronger than that of the inner conductor (812). This may make the outer contact (814) a preferred portion of the guidewire (802) for mechanically fixing the guidewire (802) to the carrier (808). The outer connecter contact (824) can have one or more conductive parts mounted in the carrier (808) and connected to a rotatable contact behind or outside the carrier. This can be done using a conductive ring (834) in slidable contact with a spring-loaded plunger (838) or with a stamped flat contact. These may be mounted on a printed circuit board (PCB) or directly to the outer adapter of, e.g., a BNC (832) or to the body (804). In another embodiment, the distal contact may be a passive slip type contact and the guidewire is mechanically fixed to the carrier in a location other than the distal contact.

Detailed Description Text (52):
The inner contact (822) can be, e.g., an active clamping, or a passive slip fit type of contact. As a passive contact, it could contact the proximal guidewire contact (812) using, e.g.: a wire oriented perpendicular to the channel and having a surface tangent to the channel; a patch, strip, or ring of formed or stamped metal placed adjacent to the channel; a coiled or deformed coil spring, providing a contact and gripping surface; a tube modified with slits or dimples to permit expansion and clamping; or with a tubular mesh that can expand or clamp with axial movement of the guidewire. A portion of a formed contact, e.g., the end exposed to the channel, may be oriented tangentially with respect to the channel. The inner contact (822) may include a springloaded piston which allows the wire to pass but maintains contact while in place.

Detailed Description Text (53):
An electrical signal received by any of these types of contacts may be coupled to, e.g., a ring (834), an outer adapter of a connector, or the connector body. In addition to the rotational movement this can allow axial movement via sliding or flexible contact to allow the carrier to be actuated. A coil spring may be deformed on it perimeter, i.e., by bending the turns of the coil out of round to conform to, e.g., a triangular or rectangular shape. Such perimeter deformation can provide an electrical contact and can provide gripping and removal resistance. A spring may also be longitudinally deformed, in which the spring is bent away from its straight-line shape, so that it can provide an electrical contact and can provide gripping and removal resistance.

Detailed Description Text (54):
The outer contact (824) may also have a wire, a patch or ring of formed or stamped metal, a spring, tube, or mesh, as described above.

Detailed Description Text (55):
FIG. 11 shows an embodiment wherein the wedge (1102) can be separate from the connector body (1104). This facilitates the actuation of the carrier (1108) to open the at least one of the proximal and distal contacts (1122, 1124) without the need for axial movement of the carrier (1108), thereby simplifying the electrical connections from the carrier (1108) to the body (1104) of the connector. Actuation can be accomplished, e.g., by lifting a lever (1110) away from the body (1104),

causing the wedge (1102) to move into the carrier (1108). Other securing mechanisms described herein and known to the art may also be employed.

Detailed Description Text (56):
In an embodiment, additional contacts can be incorporated into the guidewire channel to provide any contacts needed for detecting the presence or absence of the guidewire contact.

Detailed Description Text (57):
In another embodiment depicted in FIG. 4, the connector (411) may include a pair of coaxial tubular contacts. The proximal contact section of the guidewire may be inserted into the connector to couple with the contacts. These contacts could include, e.g., a slip fit on the guidewire contacts, or an active radial clamping action that can be applied to positively hold the tubular contacts on the guidewire contacts. These could also be combined, such as a sliding contact (405) for the inner conductor/proximal connection and a radially clamping contact (407) for the outer conductor/distal connection.

Detailed Description Text (58):
An active clamping configuration has the advantage of a secure mechanical connection when electrically connected, allowing the connection to withstand some tensile and torsional loading while the guidewire is manipulated. Radial clamping action can be applied by, e.g., a screw, spring, plunger or lever (401), which can be levered to compress, bend, or apply friction to the guidewire when it is within the connector tubes. The tubes could be made from a conductive material with slots to allow flex for clamping, or alternatively from a metal spring or a flexible conductive material, such as a plastic with an electrically conductive coating or filler.

Detailed Description Text (63):
A guidewire may be inserted through an orifice (704) into a channel (708) within the contact carrier (702). The guidewire may be secured in the contact carrier (702) by any of the securing mechanisms described herein or known to one of skill in the art.

Detailed Description Text (64):
In any of the embodiments described herein, the body of the connector can provide shielding to prevent RF interference by use of a conductive material for the body, or a conductive layer on a nonconductive material. All materials are preferably nonmagnetic to prevent interaction with the magnetic field of the MR scanner.

Detailed Description Text (65):
Any arrangement of guidewire contacts described herein or known to one of skill in the art may be deployed within a contact carrier (702) of the combined connector (700). An interface circuit (710) may be arranged adjacent to the contact carrier (702) and within a common housing (712). The guidewire contacts are electrically coupled to the interface circuit using any type of electrical contact configuration, such as a coaxial connector, individual sliding or rotating contacts or hardwire connection.

Detailed Description Text (66):
Use of the combined connector may substantially diminish the risk of guidewire disconnection from the interface circuit during operation. This risk can be troublesome because the guidewire antenna can cause RF heating of the tissue surrounding it if not appropriately connected to the interface circuit during use, e.g., the transmit cycle of the MR imaging sequence.

Detailed Description Text (67):
To guard further against unintentional disconnection of the guidewire from the interface circuit, the connector may further include a connection detector. The

connection detector may be exposed to the channel. The detector circuit may couple with at least one of the contacts in the connector. The detector circuit can couple with a standalone detector. The detector circuit may cause an alarm to be tripped in order to notify an operator or technician that a disconnection has occurred. The detector circuit may also couple with the MRI systems control signals to, e.g., notify the user and/or terminate the scan in case of a disconnect from the system.

Detailed Description Text (68):
An example of a connection detector can be a pair of contacts that form a closed circuit when they touch one or more of the guidewire contacts. The closed circuit could power an LED display, alarm, or indicator. Such a display, alarm, or indicator can provide constant reassurance to the operator or control room technician that the guidewire is connected, or could notify the operator or technician that disconnection has occurred. The closed circuit could also function as an interlock with the MRI system supplied control signals.

Detailed Description Text (69):
In an embodiment shown in FIG. 12, the proximal end of the guidewire (1202) having an inner conductor (1204) and outer conductor (1208) can be inserted into the distal end of the connector (1210). As the guidewire (1202) can be advanced through the connector, the outer conductor (1208) can bridge the gap between distal and proximal connector contacts (1212, 1214). The inner conductor (1204) can bridge the gap between distal and proximal inner contacts (1218, 1220). A control signal supplied from the system side on a center pin (1222) can thus be routed through a detector circuit, such as the capacitor/inductor combination (1224), onto the outer conductor (1208), and thence to the system.

Detailed Description Text (75):
In another example, an inductive or capacitive sensor may be integrated into the connector so that the presence of the guidewire can be detected.

Detailed Description Text (76):
The connector may also include a DC blocking circuit. It may be combined with a connection detector. FIG. 13 depicts another embodiment of a connection detector combined with a DC blocking circuit. The proximal end of the guidewire (1302) having an inner conductor (1304) and outer conductor (1308) may be inserted into the distal end of the connector (1310). As the guidewire (1302) is advanced through the connector, the outer conductor (1308) can contact outer contact (1312). The inner conductor (1304) contacts a distal inner contact (1318) and may be electrically coupled to proximal inner contact (1320) through an RF bypass capacitor (1328). The inner conductor (1304) can make contact with a push button assembly (1330) having a distal insulating block (1332), a conductive midsection block (1334) and, e.g., a proximal element (1338) that may be, e.g., a spring. As the inner conductor (1308) pushes the push button assembly (1330) toward the proximal end of the connector (1310), contact may be made between a detection contact (1340) coupled to detector circuit (1324) and the proximal inner contact (1320). This completes a DC path for the control signals from the MR system through the detector circuit (1324). DC voltage can be blocked from the outer conductor (1308) by the RF bypass capacitors (1342).

Detailed Description Text (77):
The connector may also include an identification system. The identification could help ensure that the proper guidewire and connector combination is being used. In an embodiment, the identification system includes a predefined size and/or shape of the orifice of the connector. This predetermined size and/or shape could be selected to allow insertion and/or secure attachment of only appropriately configured guidewires. In an embodiment, the identification system could include a guidewire sensor that recognizes electrically or electronically encoded parameters in the guidewire, such as resistor values, digital signatures, unique serial numbers, or barcodes printed on the guidewires that may be scanned before use or

read during insertion of the guidewire. This could help ensure proper combinations of guidewires and connectors and could also help ensure, if desired, that a particular guidewire, having a unique serial number, is used only one time.

CLAIMS:

1. A connector for receiving an MRI guidewire, comprising: an orifice for receiving an end of said guidewire; a channel communicating with said orifice and providing an insertion path for said end of said guidewire; a first contact at least partly exposed to said channel, said first contact sized and shaped to couple with an inner conductor contact of said guidewire; a second contact at least partly exposed to said channel, said second contact sized and shaped to couple with an outer conductor contact of said guidewire, said first and second contacts being sequentially disposed along said insertion path; an output terminal electrically coupled to said first and second contacts; and a fastener structured and positioned to hold said end of said guidewire within said channel.

2. The connector of claim 1, wherein said first contact comprises a collet.

3. The connector of claim 1, wherein said first contact comprises a tubular contact.

4. The connector of claim 1, wherein said first contact comprises a formed metal contact.

5. The connector of claim 4, wherein a portion of said formed metal contact is oriented tangentially with respect to said channel.

6. The connector of claim 1, wherein said first contact comprises a wire.

7. The connector of claim 1, wherein said first contact comprises a tubular mesh.

8. The connector of claim 1, wherein said first contact comprises a metal ring.

9. The connector of claim 1, wherein said first contact comprises a spring.

10. The connector of claim 9, wherein said spring is deformed on its perimeter.

11. The connector of claim 9, wherein said spring is longitudinally deformed.

13. The connector of claim 1, wherein said first contact extends axially to said output terminal to form said center pin.

14. The connector of claim 1, wherein said first contact comprises a spring piston.

15. The connector of claim 1, wherein said second contact comprises a collet.

16. The connector of claim 1, wherein said second contact comprises a tubular contact.

17. The connector of claim 1, wherein said second contact comprises a formed metal contact.

18. The connector of claim 17, wherein a portion of said formed metal contact is oriented tangentially with respect to said channel.

19. The connector of claim 1, wherein said second contact comprises a wire.

20. The connector of claim 1, wherein said second contact comprises a tubular mesh.

21. The connector of claim 1, wherein said second contact comprises a metal ring.

22. The connector of claim 1, wherein said second contact comprises a spring.

23. The connector of claim 22, wherein said spring is deformed on its perimeter.

24. The connector of claim 22, wherein said spring is longitudinally deformed.

26. The connector of claim 1, wherein said second contact extends axially to said output terminal to form said center pin.

27. The connector of claim 1, wherein said second contact comprises a spring piston.

28. The connector of claim 1, wherein said inner conductor contact extends axially to said output terminal to form said center pin.

30. The connector of claim 29, further comprising a wiper disposed in said cap, said wiper shaped and positioned to contact said guidewire while said connector is receiving said guidewire.

31. The connector of claim 1, further comprising a wiper shaped and positioned to contact said guidewire while said connector is receiving said guidewire.

32. The connector of claim 1, further comprising a contact carrier surrounding said channel.

36. The connector of claim 35, further comprising a spring disposed between said wedge and said carrier.

38. The connector of claim 1, wherein said fastener includes at least one of a cap, a lever, a button, a cam, a return spring, a detent, a collet, a snap, a dial, or threads.

39. The connector of claim 1, wherein said first contact is positioned proximal to said second contact with respect to said output terminal, and said second contact is positioned distal to said first contact.

40. The connector of claim 1, wherein said first contact is positioned distal to said second contact with respect to said output terminal, and said second contact is positioned proximal to said first contact.

41. The connector of claim 1, wherein said first contact and said second contact are electrically insulated from each other by an insulator.

42. The connector of claim 1, wherein said first contact and said second contact are physically isolated from each other.

43. The connector of claim 1, further comprising an interface circuit electrically coupled to said first and second contacts.

50. The connector of claim 47, wherein said detector comprises a pair of contacts, wherein a closed circuit is formed between said pair of contacts when said guidewire is sufficiently inserted into said channel.

58. The connector of claim 47, wherein said detector comprises at least one of an inductive sensor and a capacitive sensor, wherein said detector detects the presence of said guidewire in said channel.

62. The connector of claim 1, further comprising a DC blocking capacitor electrically coupled to at least one of said first and second contacts.

63. The connector of claim 62, further comprising an RF bypass capacitor electrically coupled to at least one of said first and second contacts.

66. A connector for receiving an MRI guidewire, comprising: an orifice for receiving an end of said guidewire; a channel communicating with said orifice and providing an insertion path for said end of said guidewire; a first contact at least partly exposed to said channel, said first contact sized and shaped to couple with an inner conductor contact of said guidewire; a second contact at least partly exposed to said channel, said second contact sized and shaped to couple with an outer conductor contact of said guidewire, said first and second contacts being sequentially disposed along said insertion path; an output terminal electrically coupled to said first and second contacts; an interface circuit electrically coupled to said first and second contacts; and a fastener structured and positioned to hold said end of said guidewire within said channel.

67. A connector for receiving an MRI guidewire, comprising: an orifice for receiving an end of said guidewire; a channel communicating with said orifice and providing an insertion path for said end of said guidewire; a first contact at least partly exposed to said channel, said first contact sized and shaped to couple with an inner conductor contact of said guidewire; a second contact at least partly exposed to said channel, said second contact sized and shaped to couple with an outer conductor contact of said guidewire, said first and second contacts being sequentially disposed along said insertion path; an output terminal electrically coupled to said first and second contacts; a connection detector exposed to said channel; and a fastener structured and positioned to hold said end of said guidewire within said channel.

68. A connector for receiving an MRI guidewire, comprising: an orifice for receiving an end of said guidewire; a channel communicating with said orifice and providing an insertion path for said end of said guidewire; a first contact at least partly exposed to said channel, said first contact sized and shaped to couple with an inner conductor contact of said guidewire; a second contact at least partly exposed to said channel, said second contact sized and shaped to couple with an outer conductor contact of said guidewire, said first and second contacts being sequentially disposed along said insertion path; an output terminal electrically coupled to said first and second contacts; a DC blocking capacitor electrically coupled to at least one of said first and second contacts; and a fastener structured and positioned to hold said end of said guidewire within said channel.

69. A connector for receiving an MRI guidewire, comprising: an orifice for receiving an end of said guidewire; a channel communicating with said orifice and providing an insertion path for said end of said guidewire; a first contact at least partly exposed to said channel, said first contact sized and shaped to couple with an inner conductor contact of said guidewire; a second contact at least partly exposed to said channel, said second contact sized and shaped to couple with an outer conductor contact of said guidewire, said first and second contacts being sequentially disposed along said insertion path; an output terminal electrically coupled to said first and second contacts; an interface circuit electrically coupled to said first and second contacts; a connection detector exposed to said channel; and a fastener structured and positioned to hold said end of said guidewire within said channel.

70. A connector for receiving an MRI guidewire, comprising: an orifice for receiving an end of said guidewire; a channel communicating with said orifice and providing an insertion path for said end of said guidewire; a first contact at least partly exposed to said channel, said first contact sized and shaped to couple

with an inner conductor contact of said guidewire; a second contact at least partly exposed to said channel, said second contact sized and shaped to couple with an outer conductor contact of said guidewire, said first and second contacts being sequentially disposed along said insertion path; an output terminal electrically coupled to said first and second contacts; an interface circuit electrically coupled to said first and second contacts; a connection detector exposed to said channel; a DC blocking capacitor electrically coupled to at least one of said first and second contacts; and a fastener structured and positioned to hold said end of said guidewire within said channel.

71. A medical device, comprising: a magnetic resonance imaging (MRI) guidewire, comprising: an inner conductor; an outer conductor coaxially disposed about said inner conductor; a distal end sized and shaped for insertion into a subject to receive MRI signals; and a proximal end sized and shaped for insertion into a connector, said proximal end having an outer conductor contact coupled electrically to said outer conductor, and an extended section of said inner conductor that extends axially beyond said outer conductor contact, said extended section including: an inner conductor contact having an electrically conductive material disposed at least partially around said inner conductor; and an insulated area interposed between said outer conductive contact and said inner conductive contact, and having an electrically insulating material disposed at least partially around said inner conductor; and a connector for receiving said MRI guidewire, comprising: an orifice for receiving said proximal end of said guidewire; a channel communicating with said orifice and providing an insertion path for said proximal end of said guidewire; a first contact at least partly exposed to said channel, said first contact sized and shaped to couple with said inner conductor contact of said guidewire; a second contact at least partly exposed to said channel, said second contact sized and shaped to couple with said outer conductor contact of said guidewire, said first and second contacts being sequentially disposed along said insertion path; an output terminal electrically coupled to said first and second contacts; and a fastener structured and positioned to hold said proximal end of said guidewire within said channel.

87. The medical device of claim 71, wherein said outer conductor contact and said inner conductor contact are each annular in shape.

88. The medical device of claim 87, wherein said outer conductor contact and said inner conductor contact have approximately equal diameters.

89. The medical device of claim 87, wherein said inner conductor contact is disposed radially about a portion of said extended section of said inner conductor.

91. The medical device of claim 71, wherein said outer conductor contact is axially distal to said inner conductor contact.

WEST Search History

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DATE: Tuesday, June 15, 2004

Hide?	Set Name	Query	Hit Count
		DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ	
☐	L40	L39 and ("1/4" or ".lamda./4" or "0.25")	7
☐	L39	L38 and (socket or plug)	86
☐	L38	L37 and (electric$4)	200
☐	L37	L36 and ((remov$4 or detatch$4 or insert$4 or detach$4) with (wand or probe or rod or sensor or coil or instrument or catheter or device))	219
☐	L36	L35 and (remov$4 or detatch$4 or insert$4 or detach$4)	438
☐	L35	L34 and (wand or probe or rod or sensor)	456
☐	L34	L33 and (clip or jumper or contact or spring)	516
☐	L33	L32 and (wave or wavelength or wave-length or "wave length" or ".lamda.")	685
☐	L32	L31 and (NMR or MRI or (magnetic adj resonance))	1299
☐	L31	(wireless or wire-less or "wire less")	193408
☐	L30	L29 and ((wand or probe or rod or tube) with (capacit$4))	1
☐	L29	L28 and ((wand or probe or rod or tube) with (coil))	39
☐	L28	L27 and (wand or probe or rod or tube)	197
☐	L27	L26 and ((slid$4 or movable or adjustable) with collar)	220
☐	L26	L1 and (collar)	1636
☐	L25	L24 and (collar)	0
☐	L24	L23 and ((wand or probe or rod) with capacit$4)	24
☐	L23	L2 and ((wand or probe or rod) with coil)	86
☐	L22	l1 and (control with wand)	105
☐	L21	5390673	25
☐	L20	L19 and l1	16
☐	L19	kikinis.in.	523
☐	L18	L17 and l11	7
☐	L17	L14 or l12	13773
☐	L16	L15 and l11	0
☐	L15	L14 and l12	1002
☐	L14	600/410-438.ccls.	7171
☐	L13	600/.ccls.	0
☐	L12	324/300-322.ccls.	7604

☐	L11	L10 and (adjust$4 or control$4 or slid$4 or fasten$4 or secur$4 or mount$3)	91
☐	L10	L9 and (socket or plug)	91
☐	L9	L8 and (capacit$4)	195
☐	L8	L7 and (wave or wavelength or wave-length or "wave length" or ".lamda.")	271
☐	L7	L6 and (electric$4)	410
☐	L6	L5 and (clip or jumper or contact)	742
☐	L5	L3 and (remov$4 or detatch$4 or insert$4 or detach$4)	1346
☐	L4	L3 and (remov$4 or detatch$4 or intert$4 or detach$4)	1308
☐	L3	L2 and (wand or probe or rod)	1411
☐	L2	L1 and ("1/4" or ".lamda./4")	6273
☐	L1	(NMR or MRI or (magnetic adj resonance))	181369

END OF SEARCH HISTORY

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Search Results - Record(s) 1 through 7 of 7 returned.

☐ 1. Document ID: US 20040015079 A1

Using default format because multiple data bases are involved.

L18: Entry 1 of 7 File: PGPB Jan 22, 2004

PGPUB-DOCUMENT-NUMBER: 20040015079
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040015079 A1

TITLE: Ultrasound probe with integrated electronics

PUBLICATION-DATE: January 22, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Berger, Noah	Framingham	MA	US	
Brodsky, Michael	Brookline	MA	US	
Chiang, Alice M.	Weston	MA	US	
LaForest, Mark	Acton	MA	US	
Wong, William	Milton	MA	US	
He, Xingbai	Andover	MA	US	
Chang, Peter P.	Burlington	MA	US	

US-CL-CURRENT: 600/437; 600/443, 600/464

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

☐ 2. Document ID: US 6714013 B2

L18: Entry 2 of 7 File: USPT Mar 30, 2004

US-PAT-NO: 6714013
DOCUMENT-IDENTIFIER: US 6714013 B2

TITLE: Magnetic resonance imaging receiver/transmitter coils

DATE-ISSUED: March 30, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Misic; George J.	Allison Park	PA		

US-CL-CURRENT: 324/318; 324/322

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 3. Document ID: US 6246898 B1

L18: Entry 3 of 7 File: USPT Jun 12, 2001

US-PAT-NO: 6246898
DOCUMENT-IDENTIFIER: US 6246898 B1

TITLE: Method for carrying out a medical procedure using a three-dimensional tracking and imaging system

DATE-ISSUED: June 12, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Vesely; Ivan	Cleveland Heights	OH		
Smith; Wayne	London			CA
Klein; George	London			CA
Burkhoff; Daniel	Tenafly	NJ		

US-CL-CURRENT: 600/424; 600/429, 600/439, 606/130

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 4. Document ID: US 5982179 A

L18: Entry 4 of 7 File: USPT Nov 9, 1999

US-PAT-NO: 5982179
DOCUMENT-IDENTIFIER: US 5982179 A

TITLE: NMR circuit-switch

DATE-ISSUED: November 9, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Munsell; Andrew W.	Tucson	AZ		
Rice; Robert G.	Mountain Veiw	CA		
Finnigan; James P.	Santa Clara	CA		

US-CL-CURRENT: 324/322; 370/281

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 5. Document ID: US 5706810 A

L18: Entry 5 of 7 File: USPT Jan 13, 1998

US-PAT-NO: 5706810
DOCUMENT-IDENTIFIER: US 5706810 A

TITLE: Magnetic resonance imaging assisted cryosurgery

DATE-ISSUED: January 13, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Rubinsky; Boris	Albany	CA		
Gilbert; John	Berkeley	CA		
Wong; San	Emeryville	CA		
Roos; Mark	San Francisco	CA		
Pease; Grant	Oakland	CA		

US-CL-CURRENT: 600/412; 600/549

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

☐ 6. Document ID: US 5651047 A

L18: Entry 6 of 7 File: USPT Jul 22, 1997

US-PAT-NO: 5651047
DOCUMENT-IDENTIFIER: US 5651047 A

TITLE: Maneuverable and locateable catheters

DATE-ISSUED: July 22, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Moorman; Jack W.	Los Gatos	CA		
Wilent, deceased; John W.	late of Aptos	CA		

US-CL-CURRENT: 378/98.8; 378/19, 600/373, 600/433

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

☐ 7. Document ID: US 5433717 A

L18: Entry 7 of 7 File: USPT Jul 18, 1995

US-PAT-NO: 5433717
DOCUMENT-IDENTIFIER: US 5433717 A

TITLE: Magnetic resonance imaging assisted cryosurgery

DATE-ISSUED: July 18, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Rubinsky; Boris	Albany	CA		
Gilbert; John	Berkeley	CA		
Wong; Sam	Emeryville	CA		
Roos; Mark	San Francisco	CA		
Pease; Grant	Oakland	CA		

US-CL-CURRENT: 606/20; 600/411, 600/412

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Term	Documents
(17 AND 11).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	7
(L17 AND L11).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	7

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Search Results - Record(s) 1 through 16 of 16 returned.

☐ 1. Document ID: US 6718054 B1

Using default format because multiple data bases are involved.

L20: Entry 1 of 16 File: USPT Apr 6,. 2004

US-PAT-NO: 6718054
DOCUMENT-IDENTIFIER: US 6718054 B1

TITLE: MRA segmentation using active contour models

DATE-ISSUED: April 6, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Lorigo; Liana M.	Cambridge	MA		
Grimson; W. Eric L.	Lexington	MA		
Faugeras; Olivier	Valbonne			FR
Keriven; Renaud	Joinville			FR
Westin; Carl-Fredrik	Cambridge	MA		
Kikinis; Ron	Brookline	MA		

US-CL-CURRENT: 382/128

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 2. Document ID: US 6697538 B1

L20: Entry 2 of 16 File: USPT Feb 24, 2004

US-PAT-NO: 6697538
DOCUMENT-IDENTIFIER: US 6697538 B1

TITLE: Apparatus for producing a flattening map of a digitized image for conformally mapping onto a surface and associated method

DATE-ISSUED: February 24, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Angenent; Sigurd B.	Madison	WI		
Tannenbaum; Allen R.	Smyrna	GA		

Haker; Steven	New Haven	CT
Kikinis; Ron	Brookline	MA

US-CL-CURRENT: 382/285; 708/270, 716/20

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 3. Document ID: US 6077082 A

L20: Entry 3 of 16 File: USPT Jun 20, 2000

US-PAT-NO: 6077082
DOCUMENT-IDENTIFIER: US 6077082 A

TITLE: Personal patient simulation

DATE-ISSUED: June 20, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gibson; Sarah Frances Frisken	Arlington	MA		
Grimson; William Eric Leifur	Lexington	MA		
Kanade; Takeo	Pittsburgh	PA		
Kikinis; Ron	Brookline	MA		

US-CL-CURRENT: 434/262; 434/307R, 703/13

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 4. Document ID: US 5999840 A

L20: Entry 4 of 16 File: USPT Dec 7, 1999

US-PAT-NO: 5999840
DOCUMENT-IDENTIFIER: US 5999840 A

TITLE: System and method of registration of three-dimensional data sets

DATE-ISSUED: December 7, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Grimson; W. Eric L.	Lexington	MA		
White; Steven J.	Boston	MA		
Ettinger; Gil J.	Lexington	MA		
Wells, III; William M.	Cambridge	MA		
Lozano-Perez; Tomas	West Newton	MA		
Kikinis; Ronald	Brookline	MA		

US-CL-CURRENT: 600/424; 606/130

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 5. Document ID: US 5740802 A

L20: Entry 5 of 16 File: USPT Apr 21, 1998

US-PAT-NO: 5740802
DOCUMENT-IDENTIFIER: US 5740802 A

TITLE: Computer graphic and live video system for enhancing visualization of body structures during surgery

DATE-ISSUED: April 21, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nafis; Christopher Allen	Rexford	NY		
Kelliher; Timothy Patrick	Nassau	NY		
Lorensen; William Edward	Ballston Lake	NY		
Cline; Harvey Ellis	Schenectady	NY		
Altobelli; David Egidio	Wilmington	MA		
Kikinis; Ron	Brookline	MA		
Darrow; Robert David	Scotia	NY		
Dumoulin; Charles Lucian	Ballston Lake	NY		

US-CL-CURRENT: 600/407; 352/60, 434/267, 703/2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 6. Document ID: US 5611025 A

L20: Entry 6 of 16 File: USPT Mar 11, 1997

US-PAT-NO: 5611025
DOCUMENT-IDENTIFIER: US 5611025 A

TITLE: Virtual internal cavity inspection system

DATE-ISSUED: March 11, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Lorensen; William E.	Ballston Lake	NY		
Jolesz; Ferenc A.	Brookline	MA		
Kikinis; Ron	Brookline	MA		

US-CL-CURRENT: 345/419

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

☐ 7. Document ID: US 5551431 A

L20: Entry 7 of 16 File: USPT Sep 3, 1996

US-PAT-NO: 5551431
DOCUMENT-IDENTIFIER: US 5551431 A

TITLE: Correction of magnetic resonance imager intensity inhomogeneities using tissue properties

DATE-ISSUED: September 3, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wells, III; William M.	Cambridge	MA		
Kikinis; Ron	Brookline	MA		

US-CL-CURRENT: 600/410; 324/307, 324/309, 600/416

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

☐ 8. Document ID: US 5531520 A

L20: Entry 8 of 16 File: USPT Jul 2, 1996

US-PAT-NO: 5531520
DOCUMENT-IDENTIFIER: US 5531520 A
**** See image for Certificate of Correction ****

TITLE: System and method of registration of three-dimensional data sets including anatomical body data

DATE-ISSUED: July 2, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Grimson; W. Eric L.	Lexington	MA		
White; Steven J.	Boston	MA		
Ettinger; Gil J.	Lexington	MA		
Wells, III; William M.	Cambridge	MA		
Lozano-Perez; Tomas	West Newton	MA		
Kikinis; Ronald	Brookline	MA		

US-CL-CURRENT: 382/131; 382/154, 382/294

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

☐ 9. Document ID: US 5424866 A

L20: Entry 9 of 16 File: USPT Jun 13, 1995

US-PAT-NO: 5424866
DOCUMENT-IDENTIFIER: US 5424866 A

TITLE: Dynamic holographic display with cantilever

DATE-ISSUED: June 13, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kikinis; Dan	Saratoga	CA	95070	

US-CL-CURRENT: 359/292; 348/771, 359/35, 359/846, 359/850, 359/9

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw Ds

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☐ 10. Document ID: US 5390673 A

L20: Entry 10 of 16 File: USPT Feb 21, 1995

US-PAT-NO: 5390673
DOCUMENT-IDENTIFIER: US 5390673 A

TITLE: Magnetic resonance imaging system

DATE-ISSUED: February 21, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kikinis; Dan	Saratoga	CA		

US-CL-CURRENT: 600/410; 324/309, 324/318, 600/421

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw Ds

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☐ 11. Document ID: US 5266531 A

L20: Entry 11 of 16 File: USPT Nov 30, 1993

US-PAT-NO: 5266531
DOCUMENT-IDENTIFIER: US 5266531 A

TITLE: Dynamic holographic display with cantilever

DATE-ISSUED: November 30, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY

Kikinis; Dan Santa Clara CA

US-CL-CURRENT: 438/29; 216/2, 438/21, 438/52, 438/739

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

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☐ 12. Document ID: US 5151724 A

L20: Entry 12 of 16 File: USPT Sep 29, 1992

US-PAT-NO: 5151724
DOCUMENT-IDENTIFIER: US 5151724 A

TITLE: Dynamic holographic display with cantilever

DATE-ISSUED: September 29, 1992

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kikinis; Dan	Santa Clara	CA	95054	

US-CL-CURRENT: 257/98; 257/99, 359/11, 359/15, 359/22, 359/28, 359/32, 359/35

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

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☐ 13. Document ID: US 6718054 B1, WO 200079481 A1, EP 1208535 A1

L20: Entry 13 of 16 File: DWPI Apr 6, 2004

DERWENT-ACC-NO: 2001-327751
DERWENT-WEEK: 200425
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TITLE: Segmentation method of magnetic resonance angiography images, involves iteratively updating volume using specific formula and stopping updation at convergence or as determined by operator

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

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☐ 14. Document ID: US 5551431 A

L20: Entry 14 of 16 File: DWPI Sep 3, 1996

DERWENT-ACC-NO: 1996-411661
DERWENT-WEEK: 199641
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TITLE: Correcting magnetic resonance imager intensity inhomogeneities using tissue properties - uses knowledge of tissue properties and intensity inhomogeneities to correct and segment MR images

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 15. Document ID: US 5390673 A

L20: Entry 15 of 16 File: DWPI Feb 21, 1995

DERWENT-ACC-NO: 1995-097671
DERWENT-WEEK: 199513

TITLE: Hand=held probe for medical magnetic resonance imaging - has permanent magnet, burst/sense electromagnetic coil providing high frequency burst to excite sample nuclei and to sense echo from resonating nuclei

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 16. Document ID: WO 9214266 A1, US 5151724 A, US 5266531 A, US 5424866 A

L20: Entry 16 of 16 File: DWPI Aug 20, 1992

DERWENT-ACC-NO: 1992-300275
DERWENT-WEEK: 199236

TITLE: Dynamic holographic display with cantilever - forms holographic image by controlling currents through cantilever structures to position reflective surfaces of array cells

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

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Term	Documents
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(L19 AND L1).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	16

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Search Results - Record(s) 1 through 24 of 24 returned.

☐ 1. Document ID: US 20020167321 A1

Using default format because multiple data bases are involved.

L24: Entry 1 of 24 File: PGPB Nov 14, 2002

PGPUB-DOCUMENT-NUMBER: 20020167321
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020167321 A1

TITLE: Magnetic resonance imaging receiver/transmitter coils

PUBLICATION-DATE: November 14, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Misic, George J.	Allison Park	PA	US	

US-CL-CURRENT: 324/318; 324/309

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 2. Document ID: US 20020153891 A1

L24: Entry 2 of 24 File: PGPB Oct 24, 2002

PGPUB-DOCUMENT-NUMBER: 20020153891
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020153891 A1

TITLE: Methods of and apparatus for analysing a signal

PUBLICATION-DATE: October 24, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Smith, John Alec Sydney	London		GB	
Mallion, Stephen Nicholas	Cheshire		GB	
Malcolme-Lawes, David John	Essex		GB	
Rowe, Michael David	London		GB	

US-CL-CURRENT: 324/309; 324/318

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 3. Document ID: US 20020050819 A1

L24: Entry 3 of 24 File: PGPB May 2, 2002

PGPUB-DOCUMENT-NUMBER: 20020050819
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020050819 A1

TITLE: Expandable MRI receiving coil

PUBLICATION-DATE: May 2, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Minkoff, Lawrence A.	Lattingtown	NY	US	
Fuster, Valentin	New York	NY	US	
Shinnar, Meir	Teaneck	NJ	US	
Fayad, Zahi A.	New York	NY	US	
Badimon, Juan J.	Larchmont	NY	US	

US-CL-CURRENT: 324/318; 324/322

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 4. Document ID: US 6714013 B2

L24: Entry 4 of 24 File: USPT Mar 30, 2004

US-PAT-NO: 6714013
DOCUMENT-IDENTIFIER: US 6714013 B2

TITLE: Magnetic resonance imaging receiver/transmitter coils

DATE-ISSUED: March 30, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Misic; George J.	Allison Park	PA		

US-CL-CURRENT: 324/318; 324/322

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 5. Document ID: US 6437569 B1

L24: Entry 5 of 24 File: USPT Aug 20, 2002

US-PAT-NO: 6437569
DOCUMENT-IDENTIFIER: US 6437569 B1

TITLE: Expandable MRI receiving coil

DATE-ISSUED: August 20, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Minkoff; Lawrence A.	Lattingtown	NY		
Fuster; Valentin	New York	NY		
Shinnar; Meir	Teaneck	NJ		
Fayad; Zahi A.	New York	NY		
Badimon; Juan J.	Larchmont	NY		

US-CL-CURRENT: 324/318; 600/422, 600/423

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 6. Document ID: US 6396273 B2

L24: Entry 6 of 24 File: USPT May 28, 2002

US-PAT-NO: 6396273
DOCUMENT-IDENTIFIER: US 6396273 B2
**** See image for Certificate of Correction ****

TITLE: Magnetic resonance imaging receiver/transmitter coils

DATE-ISSUED: May 28, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Misic; George J.	Allison Park	PA		

US-CL-CURRENT: 324/318; 324/322

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 7. Document ID: US 6208136 B1

L24: Entry 7 of 24 File: USPT Mar 27, 2001

US-PAT-NO: 6208136
DOCUMENT-IDENTIFIER: US 6208136 B1

TITLE: Method of and apparatus for nuclear quadrupole resonance testing a sample, and pulse sequence for exciting nuclear quadrupole resonance

DATE-ISSUED: March 27, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Smith; John Alec Sydney	London			GB
Peirson; Neil Francis	Northampton			GB

US-CL-CURRENT: 324/300; 324/314

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 8. Document ID: US 6194898 B1

L24: Entry 8 of 24 File: USPT Feb 27, 2001

US-PAT-NO: 6194898
DOCUMENT-IDENTIFIER: US 6194898 B1

TITLE: System and method for contraband detection using nuclear quadrupole resonance

DATE-ISSUED: February 27, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Magnuson; Erik E.	Cardiff	CA		
Moeller; Charles R.	Cardiff	CA		
Shaw; Julian D.	Sebastopol	CA		
Sheldon; Alan G.	San Diego	CA		

US-CL-CURRENT: 324/300; 324/309, 324/318

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 9. Document ID: US 6040697 A

L24: Entry 9 of 24 File: USPT Mar 21, 2000

US-PAT-NO: 6040697
DOCUMENT-IDENTIFIER: US 6040697 A
** See image for Certificate of Correction **

TITLE: Magnetic resonance imaging receiver/transmitter coils

DATE-ISSUED: March 21, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Misic; George J.	Allison Park	PA		

US-CL-CURRENT: 324/318; 324/322

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 10. Document ID: US 5982179 A

L24: Entry 10 of 24 File: USPT Nov 9, 1999

US-PAT-NO: 5982179
DOCUMENT-IDENTIFIER: US 5982179 A

TITLE: NMR circuit-switch

DATE-ISSUED: November 9, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Munsell; Andrew W.	Tucson	AZ		
Rice; Robert G.	Mountain Veiw	CA		
Finnigan; James P.	Santa Clara	CA		

US-CL-CURRENT: 324/322; 370/281

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 11. Document ID: US 5674218 A

L24: Entry 11 of 24 File: USPT Oct 7, 1997

US-PAT-NO: 5674218
DOCUMENT-IDENTIFIER: US 5674218 A

TITLE: Cryosurgical instrument and system and method of cryosurgery

DATE-ISSUED: October 7, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Rubinsky; Boris	Albany	CA		
Onik; Gary	Wexford	PA		
Finkelstein; J. J.	Washington	DC		
Neu; Dan	Pittsburgh	PA		
Jones; Steve	Monroeville	PA		

US-CL-CURRENT: 606/20; 606/23

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 12. Document ID: US 5424645 A

L24: Entry 12 of 24 File: USPT Jun 13, 1995

US-PAT-NO: 5424645
DOCUMENT-IDENTIFIER: US 5424645 A

TITLE: Doubly broadband triple resonance or quad resonance NMR probe circuit

DATE-ISSUED: June 13, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Doty; F. David	Columbia	SC		

US-CL-CURRENT: 324/318; 324/322

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 13. Document ID: US 5334181 A

L24: Entry 13 of 24 File: USPT Aug 2, 1994

US-PAT-NO: 5334181
DOCUMENT-IDENTIFIER: US 5334181 A

TITLE: Cryosurgical system for destroying tumors by freezing

DATE-ISSUED: August 2, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Rubinsky; Boris	Albany	CA		
Onik; Gary	Wexford	PA		
Finkelstein; J. J.	Washington	DC		
Neu; Dan	Pittsburgh	PA		
Jones; Steve	Monroeville	PA		

US-CL-CURRENT: 606/22; 606/20, 606/23, 606/26

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 14. Document ID: US 5049821 A

L24: Entry 14 of 24 File: USPT Sep 17, 1991

US-PAT-NO: 5049821
DOCUMENT-IDENTIFIER: US 5049821 A
**** See image for Certificate of Correction ****

TITLE: Continuously variable field of view surface coil for NMR imaging

DATE-ISSUED: September 17, 1991

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Duensing; George R.	Gainesville	FL		
Fitzsimmons; Jeffrey R.	Gainesville	FL		
Sanford; Don	Hawthorne	FL		

US-CL-CURRENT: 324/322; 324/318, 335/219

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

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☐ 15. Document ID: US 4996482 A

L24: Entry 15 of 24 File: USPT Feb 26, 1991

US-PAT-NO: 4996482
DOCUMENT-IDENTIFIER: US 4996482 A
**** See image for Certificate of Correction ****

TITLE: Capacitor stick for NMR probe

DATE-ISSUED: February 26, 1991

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fujito; Teruaki	Tokyo			JP

US-CL-CURRENT: 324/318; 324/322

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

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☐ 16. Document ID: US 4825163 A

L24: Entry 16 of 24 File: USPT Apr 25, 1989

US-PAT-NO: 4825163
DOCUMENT-IDENTIFIER: US 4825163 A

TITLE: Quadrature probe for nuclear magnetic resonance

DATE-ISSUED: April 25, 1989

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yabusaki; Masao	Tokyo			JP
Yamamoto; Etsuji	Akishima			JP
Murakami; Yoshiki	Tokyo			JP
Kohno; Hideki	Tokyo			JP

US-CL-CURRENT: 324/318; 324/322, 333/219

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

☐ 17. Document ID: US 4728896 A

L24: Entry 17 of 24 File: USPT Mar 1, 1988

US-PAT-NO: 4728896
DOCUMENT-IDENTIFIER: US 4728896 A

TITLE: Method and apparatus for obtaining N.M.R. spectra and coils for use therein

DATE-ISSUED: March 1, 1988

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bendall; Max R.	Burbank			AU
McKendry; Jamie M.	Kidlington			GB

US-CL-CURRENT: 324/318; 324/309, 324/322, 335/299

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

☐ 18. Document ID: US 4682125 A

L24: Entry 18 of 24 File: USPT Jul 21, 1987

US-PAT-NO: 4682125
DOCUMENT-IDENTIFIER: US 4682125 A

TITLE: RF coil coupling for MRI with tuned RF rejection circuit using coax shield choke

DATE-ISSUED: July 21, 1987

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Harrison; William H.	Malibu	CA		
Arakawa; Mitsuaki	Hillsborough	CA		
McCarten; Barry M.	Piedmont	CA		

US-CL-CURRENT: 333/12; 324/318, 324/322, 333/176, 333/185, 333/207

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

☐ 19. Document ID: US 4602213 A

L24: Entry 19 of 24 File: USPT Jul 22, 1986

US-PAT-NO: 4602213

DOCUMENT-IDENTIFIER: US 4602213 A

TITLE: Automatic tuning circuit for nuclear magnetic resonance apparatus

DATE-ISSUED: July 22, 1986

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sugiura; Satoshi	Tochigi			JP

US-CL-CURRENT: 324/307; 324/313

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 20. Document ID: US 4075552 A

L24: Entry 20 of 24 File: USPT Feb 21, 1978

US-PAT-NO: 4075552
DOCUMENT-IDENTIFIER: US 4075552 A

TITLE: Wide-band nuclear magnetic resonance spectrometer

DATE-ISSUED: February 21, 1978

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Traficante; Daniel D.	Lexington	MA	02173	
Mulcay; Michael	Lexington	MA	02173	

US-CL-CURRENT: 324/322

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 21. Document ID: US 4021726 A

L24: Entry 21 of 24 File: USPT May 3, 1977

US-PAT-NO: 4021726
DOCUMENT-IDENTIFIER: US 4021726 A

TITLE: Image formation using nuclear magnetic resonance

DATE-ISSUED: May 3, 1977

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Garroway; Allen Nathan	Oxon Hill	MD		
Grannell; Peter Kevin	Newcastle			EN
Mansfield; Peter	Chilwell			EN

US-CL-CURRENT: 324/309; 324/312

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 22. Document ID: US 3795855 A

L24: Entry 22 of 24 File: USPT Mar 5, 1974

US-PAT-NO: 3795855
DOCUMENT-IDENTIFIER: US 3795855 A

TITLE: MAGNETIC RESONANCE PROBE SYSTEM

DATE-ISSUED: March 5, 1974

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Browning; Gordon D.	Castro Valley	CA		

US-CL-CURRENT: 324/322

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 23. Document ID: JP 02309276 A

L24: Entry 23 of 24 File: JPAB Dec 25, 1990

PUB-NO: JP402309276A
DOCUMENT-IDENTIFIER: JP 02309276 A
TITLE: PROBE SYSTEM FOR NUCLEAR MAGNETIC RESONANCE APPARATUS

PUBN-DATE: December 25, 1990

INVENTOR-INFORMATION:

NAME	COUNTRY
FUJITA, MAKOTO	

US-CL-CURRENT: 324/307
INT-CL (IPC): G01R 33/32; H01P 5/08

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 24. Document ID: US 2969671 A

L24: Entry 24 of 24 File: USOC Jan 31, 1961

US-PAT-NO: 2969671
DOCUMENT-IDENTIFIER: US 2969671 A

TITLE: Ultrasonic flaw detecting apparatus

DATE-ISSUED: January 31, 1961

INVENTOR-NAME: ORR SPROULE DONALD

US-CL-CURRENT: 73/612; 73/609, 73/620

Term	Documents
WAND	13293
WANDS	12060
PROBE	301032
PROBES	132147
ROD	1493734
RODS	604441
CAPACIT$4	0
CAPACIT	8012
CAPACITA	1519
CAPACITAA	1
CAPACITAACA	1
(L23 AND ((WAND OR PROBE OR ROD) WITH CAPACIT$4)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	24

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